



**British
Cochlear
Implant
Group**

**RECOMMENDED GUIDELINES ON SAFETY
FOR COCHLEAR IMPLANT USERS**
AUTUMN 2014

(next update due 2016)

IMPORTANT

This document has been produced by the British Cochlear Implant Group with input from the major UK suppliers of cochlear implants and members of several UK cochlear implant teams. The information contained in this document aims to provide realistic guidance to cochlear implant users to enable them to gain the maximum benefit from their implants and to minimise potential problems, but is given as general guidance, parts of which may not be applicable to all cochlear implant users.

All cochlear implant users should read and understand the instructions given by the manufacturer / supplier of their cochlear implant and should take advice from their clinician on their own particular circumstances. (Cochlear implant users may find it helpful to go through these guidelines with the staff at their cochlear implant centre.)

BUT.....

... do remember that most people with cochlear implants are able to lead normal lives as long as they take a few sensible precautions. Although the information in this leaflet may seem daunting, in most cases the risks are very small!

3. Neurostimulation

Neurostimulation must not be used directly over the cochlear implant as it could lead to damage to the cochlea tissue or to the implant.

4. Electro-convulsive therapy

Electro-convulsive therapy must never be used on a cochlear implant patient.

5. Transcranial magnetic stimulation (used in treatment of depression)

This should never be used by cochlear implant users.

6. Electric hayfever relievers

These should not be used by cochlear implant users.

7. Use of electrical and electronic medical devices

Devices which cause electric current to flow through the head and / or neck should never be used. If you are considering using equipment that could involve electrical current passing through other parts of the body, you should check with your cochlear implant centre first.

Treatments that can **SOMETIMES be carried out on people with cochlear implants**

1. MRI

MRI must be approached with **extreme caution** and other imaging techniques should **always** be considered first. A person with a cochlear implant must **never** have an MRI scan without first seeking the advice of the medically responsible person from their cochlear implant team, who should also contact the implant manufacturer. An MRI machine has the potential to **damage the implant**, or cause potentially **harmful effects** due to the magnetic and electrical properties of the internal implant (the effects cannot be avoided by simply taking off the speech processor). For these reasons, a person with a cochlear implant should also not be near an MRI machine, whether it is in use or not.

Nuclear Magnetic Resonance (NMR) machines, which are sometimes used in research facilities and universities, are similar to MRI machines, so also should not be approached.

Some cochlear implants can be compatible with certain types of MRI procedure. Others can be made temporarily compatible by a minor surgical procedure. Some may not be compatible. There is a time period after cochlear implant surgery during which MRI scans cannot be carried out at all.

Contact the Surgical Team if there are any doubts, or ask the MRI department to contact the surgical team on your behalf.

2. Ultrasound

The use of ultrasonic diagnostic equipment and ultrasonic tooth cleaners is not thought to pose any significant risk of damage to the implant but ultrasound should not be applied directly over the site of the

implant and you should remove the external parts of the implant when ultrasound is in use.

3. TENS machines (as used for pain relief)

TENS machines should not be used on the head. For treatment of neck problems and before embarking on any course of physiotherapy electrotherapeutic treatment you should refer to the Implant Centre before proceeding.

4. X rays

X rays can be undertaken but the speech processor should be switched off and kept well away from all X ray equipment.

5. Gamma cameras

External equipment must be removed.

6. Electrolysis

Electrolysis must not be carried out within 1cm of any part of the cochlear implant. (Note that the eyebrows could possibly be close to some of the internal parts). The external equipment should be removed during the process.

7. Devices for electronic pain therapy (including pain relief pens)

These devices may cause damage to the implant if they are used on the head or neck. They may be used below the neck.

8. Radiotherapy (eg cobalt units or linear accelerators)

The cochlear implant is only at risk of failure if it is exposed to the direct beam. Scattered radiation is unlikely to cause any damage. As a precaution the external equipment should be removed and kept outside the treatment room. It is advisable to leave the equipment off for 2 hours after the treatment. The Cochlear Implant team should be informed of any cochlear implant users undergoing radiotherapy.

9. Ultrasound diathermy

This is acceptable below the head and neck.

10. Dental treatments

Dental probes, i.e. electrical pulp testers, can be used on people with cochlear implants. See section above for information about ultrasonic tooth cleaners.

11. Electro-acupuncture

Monopolar electro-acupuncture must not be used on the recipient's head or neck (note that the indifferent electrode may be held in the recipient's hand). Bipolar electro-acupuncture may be used, but is not advisable on the head.

12. Face lifts and hair transplants

Check with your surgeon to make sure that the incision will not affect your cochlear implant.

Treatments that **CAN be carried out on people with cochlear implants**

Treatments that are known to be safe for cochlear implant users include:

- laser hair removal
 - laser treatment for cataracts.
 - use of body mass index scales
 - use of digital body fat scales
 - electric head lice combs are safe under normal operating conditions
 - bone density scans
 - DEXA scans
 - Mammograms (but the external equipment should be removed)
 - Abdominal muscle toners ('Abs toners')

Advice for patients with pacemakers and other powered implanted medical devices

These devices can be affected (including turned off) if magnets are brought close to them, or if they are near to a neck loop. You should seek advice from the professionals responsible for the device.



1. Shops

The most common type of security system is the one found in many shops, where an alarm goes off if an item goes through which has not been paid for. There is no risk of damage to the implant or equipment from these detectors but some users prefer to switch off their speech processor because they may hear a sound as they pass through. Occasionally the security system may be activated by the implant so it is a good idea to have the ID card to hand.

2. Airports, etc

The usual airport security systems, (the ones that look like a doorframe which you walk through) produce magnetic fields which can cause the speech processor's programme to become corrupted. These systems will carry a warning that people with **heart pacemakers** should not go through. If you see this type of sign **remove the speech processor and switch it off**. Most speech processors may be passed through an X-ray machine safely as long as they are switched off, but users of processors made by AB (Advanced Bionics) should refer to their user manual for specific advice.

The internal parts of the implant may activate the alarm so ask for a **hand scan** to be done. If you are in an airport which has a special check-in facility for disabled people you are recommended to use it. Carry your ID card with you and show it to the staff.

card and user manual to show to the staff. Full body scanners (based on millimeter radio waves or X-ray back scatter techniques) which are in use at some airports will not damage the cochlear implant, but you should remove the speech processor.



Employment issues

Car repairs

If working on a running car engine, normal safety procedures should be followed. Care must be taken to avoid high voltage electric shocks, which could damage the implant even if the external equipment is removed.

Welding

Arc and MIG welding and RF PVC welding do not pose a threat to the implant but the user may hear interference. Ideally the external parts should be removed to protect them from sparks, but the user needs to weigh up the relative risk of not being able to hear.

Use of hard hats

Please refer to advice regarding helmets for use when cycling etc in the 'Sporting Activity and Play' section above.

Industrial magnets

If you are working in an environment where there are high magnetic fields you should contact your Cochlear Implant Centre for advice.



Air travel

It may be necessary to switch off the speech processor during take off and landing while the plane has the 'Fasten Seatbelts' sign illuminated. You should check with the airline staff. You should follow any instructions issued by the airline with regard to the use of personal computers and other electronic devices, and if you are traveling alone then do tell the staff that you are deaf.

You should also refer to the previous section which contains information about airport security systems.

If you wish to connect your speech processor to the headphone socket on the plane, you must use a cable designed for use with mains powered equipment.



Static electricity

Static electricity used to be a theoretical concern for cochlear implant users but the risk (which was already small) is now much less, especially for newer models of speech processor.

Children's play equipment and toys

When children are using plastic slides, crawl tunnels, ball pools and bouncy castles, carers should balance the risk of corrupting the programme in the speech processor with any risks that would be incurred because the child was unable to hear. In ball pools in particular care should be taken that the processor does not get lost.

School science lessons

- Cochlear implant users should keep well away from Van der Graaf generators (at least 2 metres) because these devices produce very high levels of static electricity. The external equipment should be removed and switched off.
 - When experimenting with static electricity as part of science lessons the speech processor and headset should be removed (not just switched off).

TV screens and computer monitors

- Implant users should not touch the screen of 'old style' cathode ray tube TVs. However LCD, LED and plasma screens do not pose any risk.
 - There is no risk from computer screens and users can safely use 'touch-screen' equipment.

Personal stereos, audio equipment, TV, car headphone sockets etc



Never connect a speech processor directly to any electrical equipment. Always use the special adaptor recommended for your device. Different cables will be needed depending on whether you are connecting to battery or mains operated equipment. If in doubt it is safest to use the cable for mains-operated equipment.

For car headphone sockets, you can use the cable for battery operated equipment.

Interference (something not to worry about!)



Cochlear implant users sometimes hear interference from equipment round about them. This is temporary and **will not** damage any part of the implant system or the ear. You *may* hear a buzzing noise when you are:

- Near to over head power lines
 - Within 2km of TV or radio transmission masts, including those used by taxis, emergency services, etc
 - Near to a mobile phone, especially if the signal is poor. (It is often possible for implant users to use mobile phones but it is essential to try them first).
 - Using a games console with wireless controller
 - In the same room as the server for a wireless computer network
 - Using an interactive white board

You are **not** likely to experience any interference from:

- Mobile phone transmitter masts
 - Wireless computer networks (unless you are in the same room as the server)

Sometimes the cochlear implant may cause interference to computer speakers, radio controlled toys, etc. This will not cause any damage to the implant equipment or the user, but may cause the other equipment to perform in abnormal ways.

Miscellaneous



Electric fences

Cochlear implant users should take care not to touch or crawl underneath electric fences because if the head touches the fence there is a risk of damage to the implant.

Induction cookers

If a speech processor is within 50cm of the cooking surface it could heat up, so extra care should be taken by adults using body worn speech processors on a belt, and children. Users may hear a clicking sound when close to the cooker and may prefer to remove the processor to avoid it heating up.

Toys causing deliberate electric shocks

These toys are not advisable for people with cochlear implants.

Magnetic bracelets

Some of these bracelets have strong magnets so you should remove them before handling the speech processor or raising your wrist close to the implant site.

APPENDIX

Cochlear implant user organisations

- National Cochlear Implant Users Association (NCIUA)
70 Sycamore Road
Amersham
Bucks HP6 5DR
www.nciua.org.uk
 - Cochlear Implanted Children's Support Group (CICS)
P.O. Box 28843
London SW13 0WY
www.cicsgroup.org.uk

Updated Autumn 2014